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ABSTRACT

Computers can create an atmosphere of success for children with attention deficit disorders (ADD). Appropriate software can help to encourage creative and imaginative ideas with judgment temporarily suspended. Software which may be useful in this attempt is reviewed, and three suggestions are made for parents and teachers: (1) assemble existing software and design a problem solving program; (2) prepare programs from printed materials; or (3) adopt and modify a program that was designed for non learning disabled students. (CL)

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The Child With Attention Deficit Disorder: Finding A Safe Place To Learn Problem Solving

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Abstract

This paper discusses the author's current research and describes the ways that educators and therapists are using computers to teach problem solving to children with Attention Deficit Disorder (ADD). The author makes recommendations that will be helpful for both the parents and teachers of ADD children for structuring a problem solving program. A list of commercially available software is provided, as well as a list of sources for printed programs.

Introduction

Attention Deficit Disorder is prevalent in the school age population, affecting as many as 3% of prepubertal children. Every regular classroom teacher will probably have one of these children in his/her class--a child (usually a boy) who is hyperactive, unable to attend to either group or individual tasks for any period of time, and generally unsuccessful at both academic and social activities. These children are frustrating to their parents and teachers because they are of at least normal intelligence and can be very personable and inquisitive in a one-to-one learning situation, sharing every child's delight in exploration and discovery. Yet in a large group of children where they are expected to display self control, such as in a classroom environment, the ADD child is often disruptive, demanding extraordinary amounts of the teacher's attention and patience, and although he is always busy, he is seldom busy with an assigned task.

Because of their lack of ability to focus their attention, ADD children may miss the problem solving cues and strategies that are learned by a normal child. They are often not attending to the process by which an academic or social problem is solved.

It is the challenge of parents and educators of ADD children to design "safe" places for them to learn. Computers, complete with appropriate software, are a logical solution. For a child who has difficult focusing his attention, computers offer intrinsic fascination which will keep him on task longer. For a child who has experienced ridicule from his peers because he is behind scholastically, computers offer privacy to explore simple concepts and gain fundamental skills. For a child who has repeatedly exasperated his parents and teacher, the computer is a teacher whose patience cannot be exhausted.

Computers can be a safe place for an ADD student to learn, and of primary importance is the study of problem solving skills which can then be applied to regular academic and social situations. Computers can present the student with random and unpredictable events. Then, in the safe environment of a computer program, the ADD child may become better prepared to deal with unexpected problem situations by practicing the generation of back-up plans and alternative solutions.

Suggestion: Gather existing software to design a program in problem solving

This suggestion is especially applicable when teaching social problem solving skills to ADD children. Philip C. Kendall's book Cognitive-Behavioral Therapy for Impulsive Children, offers a twelve session program to help children learn to stop and think. The program offers suggestions for a set of self instructions, such as saying to yourself "What am I supposed to do?", "Look at all the possibilities," "Focus in," "Pick a solution," and "Check out the answer

and tell yourself you did a good job." The book provides many suggestions for activities which a child and therapist may perform together while practicing the problem solving strategy.

Gail Fitzgerald at Project Iowa has adapted Kendall's program to the computer in a pilot study and compared the progress of students who experienced activities with non-computer classroom materials with students who experieed computer activities. A search of available software revealed the situation with which special educators are painfully aware: precious little software has been developed specifically for the learning disabled population. So Fitzgerald used the available software and compared such activities as the familiar Etch-A-Sketch with software maze programs such as "Cooperation Maze" by Edutech. She compared Broderbund's "Print Shop" with the use of a variety of bulletin board materials. Fitzgerald found that the group using computer-assisted training showed a significant improvement over time as measured by their performance on Porteus Mazes. In addition to the implication that computers improve achievement for learning disabled children, this study encourages the discerning teacher and parent to choose a wide variety of available software and then use it in a problem solving context.

Software for Use in a Teacher-Designed Problem Solving Program:

Choplifter, Broderbund.

Cooperation Maze, Edutek.

Delta Drawing, Spinnaker.

Face Maker, Spinnaker.

Gertrude's Secrets, The Learning Company.

Koala Pad, Koala Technologies Corp.

Microzine, Scholastic Inc.

Miner 2049er, Micro Lab, Inc.

Rocky's Boots, The Learning Company.

Sneakers, Sirius Software, Inc.

Snooper Troops, Spinnaker.

Suggestion: Use the programs that are printed in books and magazines

For teachers who are on limited budgets which do not allow the purchase of much software, many books and magazines publish the code for programs that are useful for ADD students. The programs are typically written in either BASIC or LOGO, for any of the popular microcomputers, and will not contain graphics, as graphics require more sophisticated programming. Many programs have been written for students with very specific learning impairments that will also be helpful for the ADD student.

The author's experience leads her to recommend that the teacher or parent not expect the ADD students to participate i the preparation of the program (entering the code into the computer). Copying code into the computer requires accurate typing skills, or errors will result when the program is run. The first choice is to acquire an extremely accurate typist who will copy he code into the computer. Another option is to train a group of non-ADD students who are interested in computers to enter the code, and de-bug it. This is an exercise in problem solving for the non-ADD students, also. Or the last option is for the teacher or parent to prepare the program for the ADD student. Once these programs are prepared, they will provide a good library of very inexpensive software that a teacher or parent may use while designing a program for the ADD student.

results indicate that ADD students can also show gains in problem solving ability. However, a large range of ability has also been found, with some subjects remembering 10 to 13 items after treatment, and some subjects remembering only one or two items.

In addition to the growth in problem solving ability, ADD students showed two other significant behavioral changes. Students exhibited improved attention spans, often persisting in computer oriented tasks beyond the required lesson time. And students developed a spirit of cooperation and engaged in peer teaching. Students preferred to work in pairs rather than one-to-one with the computer, dispelling the myth of the isolated child captive to a computer screen.

Parents and teachers who are adopting a problem solving program for use with ADD students may need to modify the software of lesson design slightly. Be aware of these areas which may be particular problems for ADD students:

Comparison Kitchen, DLM Teaching Resources. Preschool to 1.

Ernie's Big Splash, CBS Interactive Learning. Preschool to 1.

Freddy's Puzzling Adventures, DLM Teaching Resources. Grade 2 to 6.

Gears, Sunburst. Grade 1 to 12.

Jack and the Beanstalk, HRM Software. Grade 2 to 8.

Memory: The First Step in Problem Solving, Sunburst. Grade K to 6.

Remember!, DesignWare, Inc. Grade 7 to Up.

The 4th R--Reasoning, MCE Inc. Grade 3 to 7.

The Factory: Strategies in Problem Solving, Sunburst. Grade 2 to 12.

The Incredible Laboratory, Sunburst. Grade 3 to 12.

Sources of Printed Code for Software Programs

"Cognitive Rehabilitation: A Publication for the Therapist, Family and Patient." 6555 Carrollton Ave., Indianapolis, IN 46220. A monthly journal that always includes both hardware/software review and the printed code for simple programs that have been used to remediate attentional deficits.

"Computing Teacher." Journal of the International Council for Computers in Education, University of Oregon, 1787 Agate Ste., Eugene, OR 97403-1923. Usually contains an article and code for a program using BASIC, and a different article on using LOGO in a classroom environment.

Tim Hartnell, Giant Book of Computer Games. Ballantine Books, New York, 1985. Over fifty programs in BASIC code, including many games and challenges that could be incorporated into an educational program.

Tom Rugg and Phil Feldman, More than 32 BASIC Programs for the Commodore 64 Computer. dilithium Press, Beaverton, Oregon, 1983.

Suggestion 3: Use software that has been designed to teach problem solving skills to regular students

This author's research involves using Sunburst's program, Memory: The First Step in Problem Solving with ADD students.

Memory is a thoroughly designed sequence of lessons for children in grades k through 6 which includes both 50 lessons and 10 diskettes. Memory was tested on regular classroom students during its three years of development in the Rochester School District. The author's work applies these lessons and software to ADD children (as identified by the Revised Conner's Questionnaire). Preliminary

Conclusion

Computers can create an atmosphere of success for academically unsuccessful children. The use of appropriate software can create an atmosphere where imaginative ideas are treated with respect and judgment is temporarily suspended. Good programs provide situations where maximum support is provided and success is highly probable. Given the importance of using the computer with learning disabled children, such as many children with ADD, three suggestions are made for parents and teachers: Assemble existing software and design a problem solving program, prepare programs from printed materials, or adopt and modify a program that was designed for non-learning disabled students.

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